Schematic: MotorDriver

Power supply section (top left):
- VCC5, VCC3.3, VCC3.3
- U1 AMS1117-3.3, pins IN OUT GNDOUT, 3 4 1 2
- C3 104, C1 220uF, C4 104, C2 220uF
- R2 1.5K, LED3.3V
- GND

MP2307DN section (left):
- VCC12
- R3 100K
- C7 10nF
- MP2307DN *1
- GND/EN 9 7
- SS 8
- GND 4
- COMP 6
- IN BS 2
- SW 3, FB 5
- L1 10uH/4A
- R4 43K, R5 1.2K, VCC5
- C14 10uF/50V
- C15 100nF
- C16 3.3nF
- R6 10K
- C17 22uF/25V
- R7 6.8K
- GND

VADOUT section (left middle):
- VCC12
- R8 10K, VADOUT
- R11 10K, R12 1K, C20 100nF
- DS? LED12V
- GND

IR2104S / Motor driver (bottom left):
- VCC12
- D1 1N4148
- C22 1uF/50V
- VCC12
- IR2104S *4
- VCC VB 1 8
- IN HO 2 7
- SD^ VS 3 6
- COM LO 4 5
- PWM
- R17 10, R18 10
- Q1 NMOS-2/LR7843
- Q2 NMOS-2/LR7843
- MOTOR
- GND

MCU section (right) - STM32F103RCT6 U2:
- VCC3.3, R1 10K, RESET?, KEY_M, RESET, C5 104, GND
- VCC3.3, C6 104, GND
- Left pins:
  1 VBAT
  2 PC13/ANT1 — LED(PC13)
  3 PC14/OSC32 — LED(PC14)
  4 PC15/OSC32 — LED(PC15)
  5 PD0/OSCIN
  6 PD1/OSCOUT
  7 NRST — RESET
  8 VADOUT
  9 PC0/ADC10
  10 PC1/ADC11
  11 PC2/ADC12
  12 PC3/ADC13
  13 VSSA
  14 VDDA
  15 PA0/WKUP/ADC0/TIM2_CH1_ETR/TIM5_CH1/TIM8_ETR
  16 PA1/ADC1/TIM2_CH2/TIM5_CH2
  17 PA2/U2_TX/ADC2/TIM2_CH3/TIM5_CH3
  18 PA3/U2_RX/ADC3/TIM2_CH4/TIM5_CH4
  19 VSS
  20 VDD
  21 PA4/SPI1_NSS/ADC4/DAC1 — PA4
  22 PA5/SPI1_SCK/ADC5/DAC2 — PA5
  23 PA6/SPI1_MISO/ADC6/TIM3_CH1/TIM8_BKIN — PWM
  24 PA7/SPI1_MOSI/ADC7/TIM3_CH2/TIM8_CH1N — PA7
  25 PC4/ADC14
  26 PC5/ADC15
  27 PB0/ADC8/TIM3_CH3/TIM8_CH2N — PB0
  28 PB1/ADC9/TIM3_CH4/TIM8_CH3N — PB1
  29 PB2/BOOT1 — BOOT1
  30 PB10/I2C2_SCL/U3_TX
  31 PB11/I2C2_SDA/U3_RX
  32 VSS
  33 VDD
- Right pins:
  64 VDD
  63 VSS — GND
  62 PB9/TIM4_CH4/SDIO_D5
  61 PB8/TIM4_CH3/SDIO_D4
  60 BOOT0 — BOOT0
  59 PB7/I2C1_SDA/TIM4_CH2
  58 PB6/I2C1_SCL/TIM4_CH1
  57 PB5/I2C1_SMBA/SPI3_MOSI/I2S3_SD
  56 PB4/JNTRST/SPI3_MISO
  55 PB3/JTDO/SPI3_SCK/I2S3_CK
  54 PD2/TIM3_ETR/U5_RX/SDIO_CMD
  53 PC12/U5_TX/SDIO_CK
  52 PC11/U4_RX/SDIO_D3
  51 PC10/U4_TX/SDIO_D2
  50 PA15/JTDI/SPI3_NSS/I2S3_WS
  49 PA14/JTCK/SWCLK — SWCLK
  48 VDD — VCC3.3
  47 VSS — GND
  46 PA13/JTMS/SWDIO — SWDIO
  45 PA12/CAN_TX/USBDP/TIM1_ETR — CAN_TX
  44 PA11/CAN_RX/USBDM/TIM1_CH4 — CAN_RX
  43 PA10/U1_RX/TIM1_CH3 — U1_RX
  42 PA9/U1_TX/TIM1_CH2 — U1_TX
  41 PA8/TIM1_CH1/MCO
  40 PC9/TIM8_CH4/SDIO_D1
  39 PC8/TIM8_CH3/SDIO_D0
  38 PC7/I2S3_MCK/TIM8_CH2/SDIO_D7
  37 PC6/I2S2_MCK/TIM8_CH1/SDIO_D6
  36 PB15/SPI2_MOSI/I2S2_SD/TIM1_CH3N
  35 PB14/SPI2_MISO/TIM1_CH2N
  34 PB13/SPI2_SCK/I2S2_CK/TIM1_CH1N
  33 PB12/SPI2_NSS/I2S2_WS/I2C2_SMBAI/TIM1_BKIN
- STM32F103RCT6

Crystal:
- Y1 8MHz, C8 22, C9 22
- C10 10uF, C11 104, VCC3.3, GND
- C12 104, GND, VCC3.3
- C13 104
- C18 104, GND, VCC3.3

SWD header P1:
- VCC3.3
- SWDIO, SWCLK
- 4 3 2 1
- C19 104
- SWD, GND

Header 7 P2:
- GND
- VCC3.3
- PA5 CLK
- PA7 MOSI
- PB0 RES
- PB1 DC
- PA4 CS
- 1 2 3 4 5 6 7
- Header 7

BOOT jumpers:
- BOOT1, VCC3.3
- BOOT0, R9 10K, R10 10K, BOOT1
- 1 2 3 4 5 6
- GND

LED indicators:
- VCC
- R13 1K, DS0, LED(PC13)
- R15 1K, DS1, LED(PC14)
- R16 1K, DS2, LED(PC15)

CAN transceiver TJA1050:
- GND
- CAN_TX TXD RS 1 8 GND
- GND CANH 2 7 CANH
- VCC CANL 3 6 CANL
- CAN_RX RXD Vref 4 5
- C21 104
- VCC5
- R14 120
- TJA1050 *2

CAN header:
- CANH 1
- CANL 2
- HEAD_CAN/2 *3

Title block:
- Title
- Size A3
- Number
- Revision
- Date: 2019.07.15
- Sheet of
- File: C:\Users\..\MotorDriver.SchDoc
- Drawn By:

Comment	Description	Designator	Footprint	LibRef	Quantity
MP2307DN		*1	SOP8	MP2307DN	1
TJA1050		*2	SOP8	TJA1050	1
HEAD_CAN/2		*3	2PIN-5.08A	HEAD_CAN/2	1
IR2104S		*4	SOP8	IR2104S	1
USB-B(micro)		*?	MICRO-USB	USB-B(micro)	1
VCC5	Header, 3-Pin, Dual row	BOOT1	HDR2X3	Header 3X2	1
220uF		C1, C2	CC6.56.5	CAP	2
104		C3, C4, C5, C6, C11, C12, C13, C18, C19, C21	0603P	C	10
10nF		C7	0603P	C	1
22		C8, C9	0603P	C	2
10uF		C10	0603P	C	1
10uF/50V		C14	CC6.56.5	CAP	1
100nF		C15, C20	0603P	C	2
3.3nF		C16	0603P	C	1
22uF/25V		C17	0603P	C	1
1uF/50V		C22	CC6.56.5	CAP	1
1N4148	1N4148	D1	DIODE_SOP	D	1
LED(PC13)	Typical RED, GREEN, YELLOW, AMBER GaAs LED	DS0	SMDLED	LED2	1
LED(PC14)	Typical RED, GREEN, YELLOW, AMBER GaAs LED	DS1	SMDLED	LED2	1
LED(PC15)	Typical RED, GREEN, YELLOW, AMBER GaAs LED	DS2	SMDLED	LED2	1
LED12V	Typical RED, GREEN, YELLOW, AMBER GaAs LED	DS?	SMDLED	LED2	1
LED3.3V	Typical RED, GREEN, YELLOW, AMBER GaAs LED	DS_source?	SMDLED	LED2	1
10uH/4A		L1	L_SOP74	L_SOP	1
SWD	Header, 4-Pin	P1	HDR1X4	Header 4	1
Header 7	Header, 7-Pin	P2	HDR1X7	Header 7	1
NMOS-2/LR7843	N-Channel Power MOSFET	Q1	SOP8	NMOS-2	1
NMOS-2/LR7843	N-Channel Power MOSFET	Q2	TO-220AB	NMOS-2	1
10K		R1, R6, R8, R9, R10, R11	0603P	R	6
1.5K		R2	0603P	R	1
100K		R3	0603P	R	1
43K		R4	0603P	R	1
1.2K		R5	0603P	R	1
6.8K		R7	0603P	R	1
1K		R12, R13, R15, R16	0603P	R	4
120		R14	0603P	R	1
10		R17, R18	0603P	R	2
KEY_M		RESET?	KEY_M	KEY_M	1
AMS1117-3.3		U1	AMS1117	AMS1117	1
STM32F103RCT6		U2	STM-LQFP64_M	STM32F103RDT6	1
8MHz	Crystal Oscillator	Y1	XTAL_US	XTAL	1